CLAIMS

1. A cDNA sequence consisting essentially of a cDNA sequence encoding GAD_{65}.

2. A host cell transformed or transfected with the cDNA sequence of claim 1.

3. A ~~biologically~~ ~~functional~~ plasmid or viral ~~DNA~~ vector ~~including~~ the cDNA sequence of claim 1.

4. A host cell stably transformed or transfected with a DNA vector according to claim 3.

5. A cDNA sequence consisting essentially of a cDNA sequence encoding a polypeptide having an amino acid sequence possessing at least one epitope for autoantibodies to GAD_{65}.

6. The cDNA sequence of claim 5 comprising a cDNA sequence encoding about the first 100 amino acids of the N-terminus of GAD_{65}.

7. The cDNA sequence of claim 1, wherein the GAD_{65} is selected from the group consisting of human and rat GAD_{65}.

8. The cDNA sequence of claim 5, wherein the cDNA sequence codes for the expression of GAD_{65}.

9. A host cell transformed or transfected with the cDNA sequence of claim 5.

10. A method of providing GAD_{65} polypeptide having at least one epitope for autoantibodies to GAD_{65} comprising:

(a) providing a host cell which replicates and expresses an intron-free DNA sequence of GAD_{65} polypeptide;

(b) growing the host cell; and

(c) recovering the GAD_{65} polypeptide.

11. The method of claim 10, wherein the GAD_{65} is human GAD_{65}.

12. A method of detecting autoantibodies to GAD which comprises:

(a) contacting a sample with a GAD polypeptide wherein the polypeptide is substantially free of non-GAD eukaryotic polypeptides;

(b) incubating the components of step (a) for a period of time and under conditions sufficient for said autoantibodies to bind to the polypeptide;

(c) separating the autoantibodies bound to the polypeptide from the sample; and

(d) detecting the presence of the autoantibodies bound to the polypeptide.

13. The method of claim 12, wherein the GAD is GAD_{65}.

14. The method of claim 13, wherein the GAD_{65} is encoded by the cDNA sequence of claim 1.

15. The method of claim 13 wherein the GAD_{65} is human GAD_{65}.

16. The method of claim 12, wherein the GAD is GAD_{67}.

17. The method of claim 16, wherein the GAD_{67} is human GAD_{67}.

18. The method of claim 12 wherein the GAD is a mixture of GAD_{65} and GAD_{67}.

19. The method of claim 12 wherein the sample is from a human.

20. The method of claim 12 wherein the detecting utilizes a detectably labeled protein capable of binding to the autoantibody.

21. The method of claim 20 wherein the binding protein is a detectably labeled second antibody.

22. The method of claim 21 wherein the detectable label is selected from the group consisting of a radioisotope, a fluorescent compound, a colloidal metal, a chemiluminescent compound, a bioluminescent compound and an enzyme.

23. A method of ameliorating an autoimmune response in a patient which comprises:

administering to the patient a therapeutically effective amount of GAD polypeptide, wherein the GAD polypeptide binds with a receptor.

24. The method of claim 22, wherein the GAD is GAD_{65}.

25. The method of claim 22, wherein the GAD is GAD_{67}.

26. The method of claim 22, wherein the GAD is a mixture of GAD_{65} and GAD_{67}.

27. The method of claim 22, wherein the GAD is human GAD.

28. The method of claim 23, wherein the receptor is selected from the group consisting of an antibody and T-helper cells.

29. The method of claim 23, wherein the autoimmune disease is selected from the group consisting of IDDM and stiff-man disease.

30. The method of claim 23, wherein the administration is parenteral.

31. The method of claim 30, wherein the parenteral administration is by subcutaneous, intramuscular, intraperitoneal, intracavity, transdermal, or intravenous injection.

32. The method of claim 23, wherein said administration is at a dosage of about 0.01 mg/kg/dose to about 2000 mg/kg/dose.

33. The method of claim 23, wherein the recombinant GAD_{65} polypeptide is therapeutically labeled.

34. The method of claim 33, wherein the therapeutic label is selected from the group consisting of a radioisotope, a drug, a lectin, and a toxin.

35. A kit useful for the detection of autoantibodies to GAD_{65}, comprising a carrier being compartmentalized to receive in close confinement therein one or more containers wherein:

(a) a first container contains GAD_{65}; and

(b) a second container contains a detectably-labeled second antibody, wherein the second antibody binds an epitopic determinant present on the autoantibody.

36. The kit of claim 35, wherein the GAD_{65} is bound to a carrier.

37. The kit of claim 36, wherein the carrier is insoluble.

38. The kit of claim 35, wherein the first container further contains GAD_{67}.